

PATENTREMARKS

Claims 1-22 are pending herein. In the Office Action, the disclosure was objected to based on informalities, claims 3-10 and 14-22 were objected to based on informalities, claims 11-19 and 22 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite, claims 11 and 20 were rejected under 35 U.S.C. §102(e) as being anticipated by Grant, claims 20-21 were rejected under 35 U.S.C. §102(b) as being anticipated by Umemoto, claim 20 was rejected under 35 U.S.C. §102(b) as being anticipated by Yamamaura, claims 14, 19 and 21 were rejected under 35 U.S.C. §103(a) as being unpatentable over Grant in view of Dunn, and claim 21 was rejected under 35 U.S.C. §103(a) as being unpatentable over Yamamaura in view of Dunn.

Claims 1-2 were allowed. Claims 12-13, 15-18 and 22 were objected to as being dependent upon a rejected base claim but were otherwise considered allowable if rewritten to overcome applicable §112 rejections.

The disclosure (Specification) is amended to replace paragraphs [0023] and [0032] with corresponding amended paragraphs to replace incorrect reference number 121 in paragraph [0023] with the correct reference number 111 for the error amplifier and to replace incorrect reference number 129 in paragraph [0032] with the correct reference number 229 for the counter. Applicant respectfully requests approval of these amendments.

Claims 3-10 and 14-22 were objected to based on informalities, and suggestions were made for amendments to claims 3, 14, 20, and 21 to resolve the objections. The claims are amended exactly in accordance with that suggested in the Office Action. In

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particular, claim 3 is amended to add commas after the words “amplifier” and “signal” in the first clause of claim 3 after the preamble (note line numbers have changed in the listing of claims herein as compared to the original filing). In claim 14, commas are added after the words “capacitor” and “amplifier” in the first clause of claim 14 and the word “error” is inserted before the same word “amplifier” to minimize confusion. In claim 18, the word “reset” is deleted to avoid the misleading suggestion that first and second reset states exist. In claim 20, the word “the” is added after “enabling” and before “output” in the last clause for proper antecedent basis. Similarly, the word “the” is added after “of” and before “reference output” in claim 21 for proper antecedent basis. Applicant believes that these amendments overcome the objections and requests withdrawal thereof.

Claims 11-19 and 22 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite.

In claim 11, it was stated that it was not clear how the gate control logic and the startup circuit can each disable output switching. Applicant notes that, according to original claim 11, the startup circuit provides the output enable signal to the gate control logic, where the gate control logic controls or otherwise actually performs the output switching. The output switching is disabled (or enabled) based on the output enable signal, which is ultimately controlled by the startup circuit. Claim 11 is amended to clarify that the gate control logic enables or disables output switching based on the output enable signal, and that the startup circuit negates the output enable signal (to cause the gate control logic to disable output switching) under the appropriate condition. Applicant

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submits that claim 11 is now clear regarding disabling of output switching and requests approval of this amendment and withdrawal of this rejection.

Claim 15 is amended as suggested in the Office Action to more clearly relate the claim to the other claims. In particular, the clause “, including said first and second states,” is inserted after “operative states” as suggested in the Office Action. Applicant requests approval of this amendment and withdrawal of this rejection.

Claim 22 is amended to depend upon claim 21 rather than non-existent claim 210. Applicant submits that this was an inadvertent typographical error and that claim 22 was intended to depend on claim 21. Applicant requests approval of this amendment and withdrawal of this rejection.

Applicant respectfully traverses the §102(e) rejection of claims 11 and 20 as being anticipated by Grant.

In Grant, element 20 is a comparator unit (Grant, col. 6, line 2) rather than an error amplifier and the output of the comparator unit 20 in Grant is a pulse signal locus (Grant, col. 6, line 9) which is the PWM signal itself. In Grant, the inputs of the comparator unit 20 are a compensation signal (described as an error locus signal 18) and the waveform 30 (sawtooth or triangular waveform) rather than an output sense signal and a startup reference signal. In Grant, the error amplifier 12 receives the output sense signal (VSENSE) and its output is a compensation signal which is not provided to the driver control unit 300. Rather than controlling startup based on the compensation signal at the output of the error amplifier as recited in claim 11, Grant monitors and controls startup based on the pulse signal locus 32 at the output of the comparator unit 20.

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Claim 11 is amended for clarity and to include the comparator of claim 12, which was otherwise considered allowable, in which the comparator has inputs for comparing the compensation signal with a predetermined ramp level and an output for providing a startup complete signal. Also, claim 11 is amended to clarify that the startup circuit negates the output enable signal until the startup signal is provided (from the comparator). Grant does not show such a comparator so that claim 11 is allowable over Grant.

Applicant respectfully submits that this rejection of claim 11 has been overcome and requests withdrawal of this rejection. Claim 12 is amended to conform with amended claim 11 and to recite further detail of the predetermined ramp level as being based on a PWM triangular waveform and to recite that the startup complete signal is provided when the compensation signal achieves an operative level. Applicant requests approval of this amendment.

Original claim 20 is allowable over Grant for similar reasons recited above for claim 11. Nonetheless, claim 20 is also amended for clarity to include comparing the compensation signal with a predetermined ramp level, providing a startup complete signal indicative thereof, and enabling the output switching when the startup complete signal is provided. Applicant submits that claim 20 is allowable over Grant and requests withdrawal of this rejection.

Applicant respectfully traverses the §102(e) rejection of claims 20 and 21 as being anticipated by Umemoto.

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Contrary to that stated in the Office Action, Umemoto's DC/DC converter 1 is not disabled when transistor Q receives a high signal at its gate. The off state of Q is only a switching state of the transistor, which switches each and every cycle of the triangular wave provided by the triangular wave generating circuit 130a to one input of a comparator 13a, which receives an error signal V_e at its other input. As shown in FIG. 2 of Umemoto, the triangular wave is continuous although its amplitude changes based on the power source voltage. Furthermore, given the interpretation in the Office Action, Umemoto does not show comparing the compensation signal with a predetermined ramp level and providing a startup complete signal indicative thereof and enabling the output switching of the DC-DC converter when the startup complete signal is provided as recited in amended claim 20. Umemoto concerns controlling the amplitude of the triangle waveform to control frequency and further to control output voltage variation in response to power source voltage, and has nothing to do with startup protection of a DC-DC converter. Claims 20 and 21 are allowable over Umemoto and Applicant requests withdrawal of this rejection.

Applicant respectfully traverses the §102(b) rejection of claim 20 as being anticipated by Yamamaura.

Similar to that stated above with respect to Umemoto, the output of Yamamaura's device 1 shown in FIG. 2 is not disabled when transistor 34 is turned off when receiving a low signal at its gate. Also, when transistor 34 is off, the other switching transistor 46 is turned on by virtue of operation of the inverter 4 driving its gate. Furthermore, given the interpretation in the Office Action, Yamamaura does not show comparing the compensation signal with a predetermined ramp level and providing a startup complete

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signal indicative thereof and enabling the output switching of the DC-DC converter when the startup complete signal is provided as recited in amended claim 20. Claim 20 is allowable over Yamamaura and Applicant requests withdrawal of this rejection.

Applicant respectfully traverses the §103(a) rejection of claims 14, 19 and 21 as being unpatentable over Grant in view of Dunn. Dunn does not overcome the deficiencies of Grant as noted above, so that these claims are allowable over Grant in view of Dunn. Applicant requests withdrawal of these rejections.

Applicant respectfully traverses the §103(a) rejection of claim 21 as being unpatentable over Yamamaura in view of Dunn. Dunn does not overcome the deficiencies of Yamamaura as noted above, so that these claims are allowable over Yamamaura in view of Dunn. Applicant requests withdrawal of this rejection.

PATENTCONCLUSION

Applicant respectfully submits that for the reasons recited above and for various other reasons, the objections and rejections have been overcome and should be withdrawn. Applicant respectfully submits therefore that the present application is in a condition for allowance and reconsideration is respectfully requested. Should this response be considered inadequate or non-responsive for any reason, or should the Examiner have any questions, comments or suggestions that would expedite the prosecution of the present case to allowance, Applicants' undersigned representative earnestly requests a telephone conference.

Respectfully submitted,

Date: September 14, 2005

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